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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/545,165	08/11/2005	Kazushige Kojima	KOJIMA3	1534

1444 7590 07/30/2007  
BROWDY AND NEIMARK, P.L.L.C.  
624 NINTH STREET, NW  
SUITE 300  
WASHINGTON, DC 20001-5303

EXAMINER
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GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

MAIL DATE	DELIVERY MODE
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07/30/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/545,165	<b>Applicant(s)</b> KOJIMA ET AL.	
	<b>Examiner</b> Dawn Garrett	<b>Art Unit</b> 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8,10-14,16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8,10-14,16 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action is responsive to the amendment filed June 11, 2007. Claims 1, 3-8, 10-14, 16 and 18 were amended. Claims 9, 15, 17, and 19 are cancelled. Claims 1-8, 10-14, 16 and 18 are pending.
2. The amendment to the specification filed June 11, 2007 is acknowledged.
3. The objections to claims 1 and 3-19 set forth in the last Office action (mailed March 9, 2007) are withdrawn due to the amendment.
4. The rejection of claims 9, 15, 17 and 19 under 35 U.S.C. 112, second paragraph, set forth in paragraph 4 of the last Office action is withdrawn due to the amendment.
5. The rejection of claims 1-7, 10-13, 16, and 18 under 35 U.S.C. 103(a) as being unpatentable over Kobori et al. (US 6,285,039 B1) in view of Satsuki et al. (US 2005/0275341 A1) is withdrawn due to the amendment.
6. The rejection of claims 8 and 14 under 35 U.S.C. 103(a) as being unpatentable over Kobori et al. (US 6,285,039 B1) in view of Satsuki et al. (US 2005/0275341 A1) in further view of Inoue et al. (US 5,635,308) is withdrawn due to the amendment.
7. The rejection of claims 9, 15, 17, and 19 under 35 U.S.C. 103(a) as being unpatentable over Kobori et al. (US 6,285,039 B1) in view of Satsuki et al. (US 2005/0275341 A1) in further view of Van Slyke et al., Appl. Phys. Lett., 69 (15), (1996), p. 2160-2162 is withdrawn due to the cancellation of these claims.
8. The rejection of claims 1-7, 10-13, 16, and 18 under 35 U.S.C. 103(a) as being unpatentable over Kobori et al. (US 6,285,039 B1) in view of Fujiwara et al. (Journal of

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Photopolymer Science and Technology, Vol. 15, No. 2 (2002), p. 237-238) is withdrawn due to the amendment.

9. The rejection of claims 8 and 14 under 35 U.S.C. 103(a) as being unpatentable over Kobori et al. (US 6,285,039 B1) in view of Fujiwara et al. (Journal of Photopolymer Science and Technology, Vol. 15, No. 2 (2002), p. 237-238) in further view of Inoue et al. (US 5,635,308) is withdrawn due to the amendment.

10. " The rejection of claims 9, 15, 17, and 19 under 35 U.S.C. 103(a) as being unpatentable over Kobori et al. (US 6,285,039 B1) in view of Fujiwara et al. (Journal of Photopolymer Science and Technology, Vol. 15, No. 2 (2002), p. 237-238) in further view of Van Slyke et al., Appl. Phys. Lett., 69 (15), (1996), p. 2160-2162 is withdrawn due to the cancellation of these claims.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

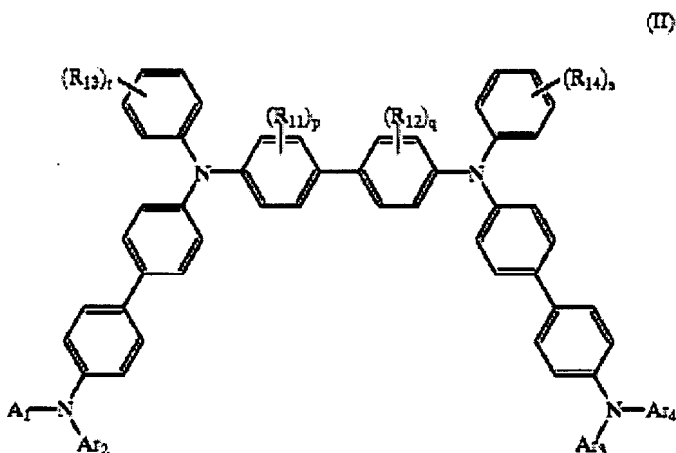
" (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-7, 10-13, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobori et al. (US 6,285,039 B1) in view of Satsuki et al. (US 2005/0275341 A1) in further view of Van Slyke et al., Appl. Phys. Lett., 69 (15), (1996), p. 2160-2162. Kobori et al. teaches light emitting layers having a mixture of hole transporting material, electron transporting material and light emitting dopant (see col. 5, lines 34-67).

"

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Kobori et al. teaches hole transporting compounds according to the following formula (see col. 5, lines 1-23):



wherein each of  $Ar_1$ ,  $Ar_2$ ,  $Ar_3$ , and  $Ar_4$  is an aryl group, at least one of  $Ar_1$  to  $Ar_4$  is a polycyclic aryl group derived from a fused ring or ring cluster having at least two benzene rings; each of  $R_{11}$  and  $R_{12}$  is an alkyl group; each of  $p$  and  $q$  is 0 or an integer of 1 to 4; each of  $R_{13}$  and  $R_{14}$  is an aryl group; and each of  $r$  and  $s$  is 0 or an integer of 1 to 5.

For the electron transporting agent, Kobori et al. teaches compounds such as anthracene may be used (see col. 22, lines 53-54).

As the light emitting dopant, Kobori et al. generally teaches coumarin derivatives (see col. 4, lines 3-27), but fails to teach specifically a coumarin derivative having a glass transition temperature over 150 degrees Celsius. Satsuki et al. teaches, in analogous art, coumarin compounds for an electroluminescent device including formula 22 with regard to the claim 2 Formula 1, formula 62 (see page 12) with regard to the claim 2 Formula 2, and formula 21 with regard to the claim 2 Formula 3. It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected one of the coumarin derivatives taught by Satsuki et al.

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as the coumarin derivative for the Kobori et al. device, because Kobori et al. teaches coumarin derivatives are suitable.

Kobori et al. further teaches a hole transporting layer and an electron transporting layer are included in the device (see col. 20, lines 25-27). With regard to claims 3-5 and 10-12, it would be obvious to select the same hole transporting material used in the mixed luminescent layer for the hole transporting layer and the same electron transporting material used in the mixed luminescent layer, because the same materials would be capable of performing the same desired transporting functions in both layers.

With regard to claims 6, 7, 13, 16, and 18 the ratio of electron transporting compound to hole transporting compound in the mixed luminescent layer is 1/99 to 99/1, which includes the amounts set forth in claims 6, 7, 13, 16, and 18 (see col. 24, lines 39-46).

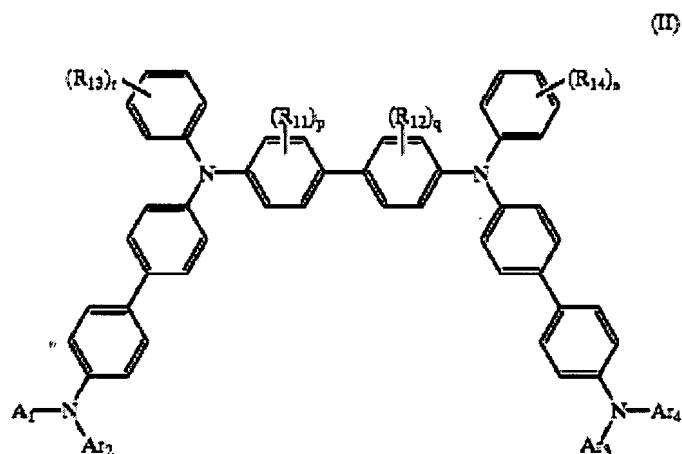
Kobori et al. teaches a light emitting device, but fails to teach a hole injecting layer comprising copper phthalocyanine. Van Slyke teaches in analogous art the improvement in stability in a device by adding CuPc (copper phthalocyanine) as a hole injection contact layer (see abstract and Fig. 1, page 2160). It would have been obvious to one of ordinary skill in the art to have formed a device comprising a CuPc hole injection layer, because one would expect such a layer to provide the benefit of improved hole mobility and device stability.

13. Claims 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobori et al. (US 6,285,039 B1) in view of Satsuki et al. (US 2005/0275341 A1) in further view of Van Slyke et al., Appl. Phys. Lett., 69 (15), (1996), p. 2160-2162 and in further view of Inoue et al. (US 5,635,308). Kobori et al. teaches light emitting layers having a mixture of hole transporting material, electron transporting material and light emitting dopant (see col. 5, lines 34-67).

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Kobori et al. teaches hole transporting compounds according to the following formula

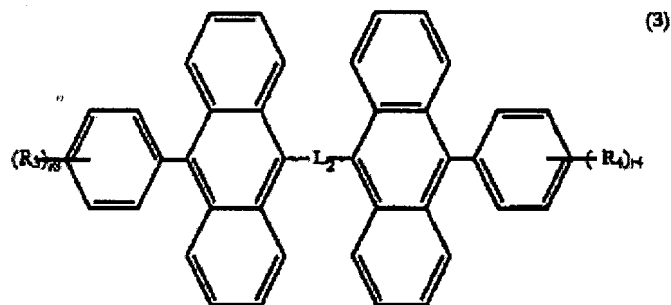
(see col. 5, lines 1-23):



wherein each of  $Ar_1$ ,  $Ar_2$ ,  $Ar_3$ , and  $Ar_4$  is an aryl group, at least one of  $Ar_1$  to  $Ar_4$  is a polycyclic aryl group derived from a fused ring or ring cluster having at least two benzene rings; each of  $R_{11}$  and  $R_{12}$  is an alkyl group; each of  $p$  and  $q$  is 0 or an integer of 1 to 4; each of  $R_{13}$  and  $R_{14}$  is an aryl group; and each of  $r$  and  $s$  is 0 or an integer of 1 to 5.

The formula taught by Kobori et al. is known in the art to have a glass transition temperature as required by the claims. For the electron transporting agent, Kobori et al. teaches compounds such as anthracene may be used (see col. 22, lines 53-54); however, Kobori et al. appears to be silent with respect to a specific anthracene compound having a glass transition temperature as set forth in the claims. Inoue et al. teaches in analogous art a phenylanthracene derivative that has an electron transporting property (see col. 3, lines 37-39) and is used as a major component (host) for a light emitting layer (see col. 3, lines 24-31):

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wherein each of  $R_3$  and  $R_4$ , which may be identical or different, is selected from the group consisting of an alkyl, cycloalkyl, aryl, alkenyl, alkoxy, aryloxy, amino and heterocyclic group, each of  $r_3$  and  $r_4$  is 0 or an integer of 1 to 5, and  $L_2$  is a valence bond or an arylene group which may have an intervening group in the form of an alkylene group,  $-O-$ ,  $-S-$  or  $-NR-$  wherein  $R$  is an alkyl or aryl group. Where  $r_3$  is an integer of 2 to 5, the  $R_3$  groups may be identical or different or the  $R_3$  groups, taken together, may form a ring. Where  $r_4$  is an integer of 2 to 5, the  $R_4$  groups may be identical or different or the  $R_4$  groups, taken together, may form a ring.

The compound taught by Inoue et al. is known in the art to have the required glass transition temperature. It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected a phenylanthracene compound taught by Inoue et al. as a material with electron transporting properties for use in a luminescent layer for the electron transporting compound of the Kobori et al. device, because Kobori et al. teaches compounds such as anthracene compounds are desirable as the electron transporting material of the luminescent layer.

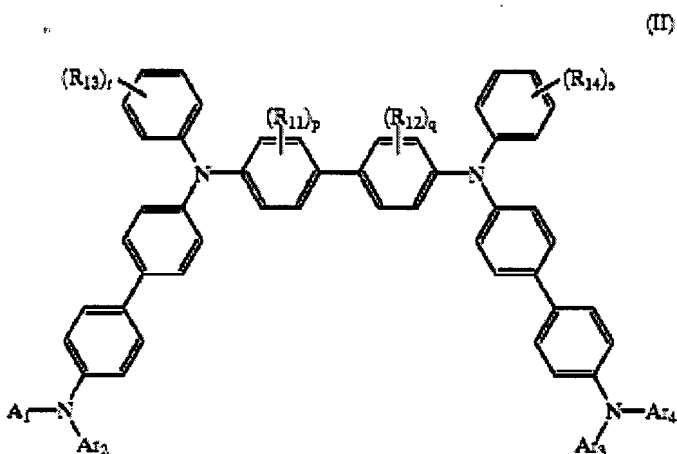
14. " Claims 1-7, 10-13, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobori et al. (US 6,285,039 B1) in view of Fujiwara et al. (Journal of Photopolymer Science and Technology, Vol. 15, No. 2 (2002), p. 237-238) in further view of Van Slyke et al., Appl. Phys. Lett., 69 (15), (1996), p. 2160-2162. Kobori et al. teaches light emitting layers



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having a mixture of hole transporting material, electron transporting material and light emitting dopant (see col. 5, lines 34-67).

Kobori et al. teaches hole transporting compounds according to the following formula (see col. 5, lines 1-23):



wherein each of  $Ar_1$ ,  $Ar_2$ ,  $Ar_3$ , and  $Ar_4$  is an aryl group, at least one of  $Ar_1$  to  $Ar_4$  is a polycyclic aryl group derived from a fused ring or ring cluster having at least two benzene rings; each of  $R_{11}$  and  $R_{12}$  is an alkyl group; each of  $p$  and  $q$  is 0 or an integer of 1 to 4; each of  $R_{13}$  and  $R_{14}$  is an aryl group; and each of  $r$  and  $s$  is 0 or an integer of 1 to 5.

For the electron transporting agent, Kobori et al. teaches compounds such as anthracene may be used (see col. 22, lines 53-54).

As the light emitting dopant, Kobori et al. generally teaches coumarin derivatives (see col. 4, lines 3-27), but fails to teach specifically a coumarin derivative having a glass transition temperature over 150 degrees Celsius. Fujiwara et al. teaches in analogous art coumarin compounds for an electroluminescent device including formula(s) according to compounds of claim 2 (see Fujiwara et al. Table 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected one of the coumarin derivatives taught by

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Fujiwara et al. as the coumarin derivative for the Kobori et al. device, because Kobori et al. teaches coumarin derivatives are suitable for the luminescent layer.

Kobori et al. further teaches a hole transporting layer and an electron transporting layer are included in the device (see col. 20, lines 25-27). With regard to claims 3-5 and 10-12, it would be obvious to select the same hole transporting material used in the mixed luminescent layer for the hole transporting layer and the same electron transporting material used in the mixed luminescent layer, because the same material would be capable of performing the same desired transporting functions in both layers.

With regard to claims 6, 7, 13, 16, and 18 the ratio of electron transporting compound to hole transporting compound in the Kobori et al. mixed luminescent layer is 1/99 to 99/1, which includes the amounts set forth in claims 6, 7, 13, 16, and 18 (see col. 24, lines 39-46).

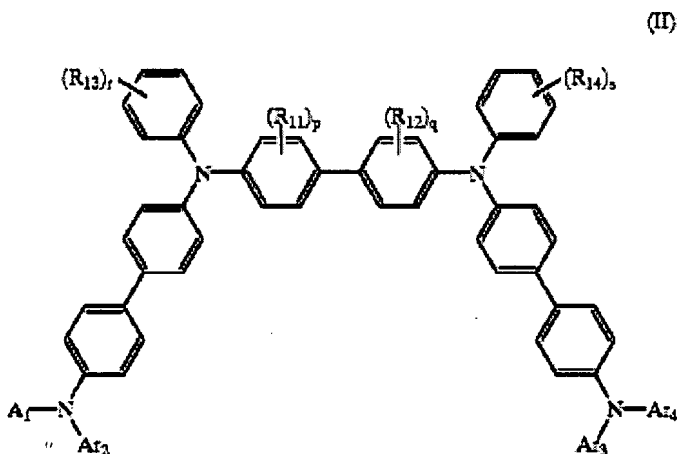
Kobori et al. teaches a light emitting device, but fails to teach a hole injecting layer comprising copper phthalocyanine. Van Slyke teaches in analogous art the improvement in stability in a device by adding CuPc (copper phthalocyanine) as a hole injection contact layer (see abstract and Fig. 1, page 2160). It would have been obvious to one of ordinary skill in the art to have formed a device comprising a CuPc hole injection layer, because one would expect such a layer to provide the benefit of improved hole mobility and device stability.

15. Claims 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobori et al. (US 6,285,039 B1) in view of Fujiwara et al. (Journal of Photopolymer Science and Technology, Vol. 15, No. 2 (2002), p. 237-238) in further view of Van Slyke et al., Appl. Phys. Lett., 69 (15), (1996), p. 2160-2162 and in further view of Inoue et al. (US 5,635,308). Kobori et

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al. teaches light emitting layers having a mixture of hole transporting material, electron transporting material and light emitting dopant (see col. 5, lines 34-67).

" Kobori et al. teaches hole transporting compounds according to the following formula (see col. 5, lines 1-23):

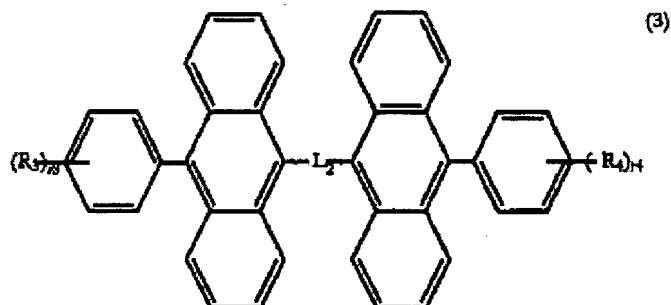


wherein each of  $Ar_1$ ,  $Ar_2$ ,  $Ar_3$ , and  $Ar_4$  is an aryl group, at least one of  $Ar_1$  to  $Ar_4$  is a polycyclic aryl group derived from a fused ring or ring cluster having at least two benzene rings; each of  $R_{11}$  and  $R_{12}$  is an alkyl group; each of  $p$  and  $q$  is 0 or an integer of 1 to 4; each of  $R_{13}$  and  $R_{14}$  is an aryl group; and each of  $r$  and  $s$  is 0 or an integer of 1 to 5.

The formula taught by Kobori et al. has a glass transition temperature as required by the claims.

For the electron transporting agent, Kobori et al. teaches compounds such as anthracene may be used (see col. 22, lines 53-54); however, Kobori et al. appears to be silent with respect to a specific anthracene compound having a glass transition temperature as set forth in the claims.

Inoue et al. teaches in analogous art a phenylanthracene derivative that has an electron transporting property (see col. 3, lines 37-39) and is used as a major component (host) for a light emitting layer (see col. 3, lines 24-31):



wherein each of  $R_3$  and  $R_4$ , which may be identical or different, is selected from the group consisting of an alkyl, cycloalkyl, aryl, alkenyl, alkoxy, aryloxy, amino and heterocyclic group, each of  $r_3$  and  $r_4$  is 0 or an integer of 1 to 5, and  $L_2$  is a valence bond or an arylene group which may have an intervening group in the form of an alkylene group,  $-O-$ ,  $-S-$  or  $-NR-$  wherein  $R$  is an alkyl or aryl group. Where  $r_3$  is an integer of 2 to 5, the  $R_3$  groups may be identical or different or the  $R_3$  groups, taken together, may form a ring. Where  $r_4$  is an integer of 2 to 5, the  $R_4$  groups may be identical or different or the  $R_4$  groups, taken together, may form a ring.

The compound taught by Inoue et al. is known in the art to have the required glass transition temperature. It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected a phenylanthracene compound taught by Inoue et al. as a material with electron transporting properties for use in a luminescent layer for the electron transporting compound of the Kobori et al. device, because Kobori et al. teaches compounds such as anthracene compounds are desirable as the electron transporting material of the luminescent layer.

### *Response to Arguments*

16. Applicant's arguments filed June 11, 2007 have been fully considered but they are not persuasive.

Applicant indicates the limitations of prior claim 9 have been incorporated into amended claim 1. With regard to the prior rejection over claim 9 as being unpatentable over Kobori in

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view of Satsuki in further view of Van Slyke et al., applicant argues Van Slyke et al. does not teach the specific copper phthalocyanine having specific properties as recited by amended claim 1. Similarly with regard to the prior rejection over claim 9 as being unpatentable over Kobori in view of Fujiwara in further view of Van Slyke, applicant argues none of the references teach the advantage of the specific copper phthalocyanine as recited in claim 1. The examiner respectfully submits that it has not been shown that the copper phthalocyanine of Van Slyke does not have the recited properties. Recitation of a newly disclosed property does not distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal Corp. v. Banner*, 227 USPQ 773. Applicant bears responsibility for proving that reference composition does not possess the characteristics recited in the claims. *In re Fitzgerald*, 205 USPQ 597, *In re Best*, 195 USPQ 430. Also, per M.P.E.P. § 2145, the arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geiseler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

### ***Conclusion***

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period


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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached at (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Dawn Garrett  
Primary Examiner  
Art Unit 1774

July 25, 2007